

WHAT IS CLAIMED AS NEW AND DESIRED TO BE PROTECTED BY LETTERS
PATENT OF THE UNITED STATES OF AMERICA, IS:

1. A threaded screw fastener adapted to be rotatably driven into a substrate, comprising:

a threaded shank portion defined around a longitudinal axis;

a head portion formed upon one end of said threaded shank portion; and

dual drive means integrally formed upon said head portion of said threaded screw fastener for permitting said threaded screw fastener to be rotatably driven into a substrate by either one of two different types of rotary drive tools when either one of the two different types of rotary drive tools is respectively engaged with a corresponding one of said dual drive means integrally formed upon said head portion of said threaded screw fastener.

2. The threaded screw fastener as set forth in Claim 1,
wherein:

said dual drive means integrally formed upon said head portion of said threaded screw fastener comprises first hexagonally configured drive means for engagement by correspondingly hexagonally configured rotary drive tool means, and second Phillips head drive means for engagement by correspondingly Phillips head configured rotary drive tool means.

3. The threaded screw fastener as set forth in Claim 2,
wherein:

5 said head portion of said threaded screw fastener
comprises a substantially circular washer member integrally
formed upon said one end of said threaded shank portion;

 said first hexagonally configured drive means
comprises upstanding structure disposed atop said substan-
tially circular washer member; and

10 said second Phillips head drive means comprises a
substantially X-shaped recessed portion defined within an
axially central region of said first hexagonally configur-ed
upstanding structure disposed upon said substantially cir-
cular washer member.

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4. The threaded screw fastener as set forth in Claim 3,
wherein:

20 said substantially circular washer member has a
predetermined diametrical extent as defined by a peripheral
edge portion; and

25 said first hexagonally configured drive means,
comprising said upstanding structure disposed atop said sub-
stantially circular washer member, has a diametrical extent
which is less than said predetermined diametrical extent of
said substantially circular washer member such that an annu-
lar shoulder portion is defined upon said substantially circ-
ular washer member between said first hexagonally configured
upstanding structure and said peripheral edge portion of said
30 substantially circular washer member.

5. The threaded screw fastener as set forth in Claim 3,
wherein:

 said first hexagonally configured upstanding
 structure disposed atop said substantially circular washer
5 member has a plurality of upstanding facets disposed around a
 peripheral portion of said upstanding structure; and

 said head portion of said threaded screw fastener
 further comprises a dome-shaped, circumferentially downwardly
 sloped surface extending between, and interconnecting, said
10 substantially X-shaped recessed portion and said peripheral
 portion of said hexagonally configured upstanding structure
 defined by said plurality of upstanding facets.

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6. The threaded screw fastener as set forth in Claim 2,
wherein:

 said head portion of said threaded screw fastener
 comprises a substantially circular washer member integrally
20 formed upon said one end of said threaded shank portion and
 comprising a peripheral edge portion;

 said first hexagonally configured structural means
 comprises a plurality of facets defined within said peripheral
 edge portion of said substantially circular washer member;
25 and

 said second Phillips head structural means comprises
 a substantially X-shaped recessed portion defined within
 an axially central region of said head portion of said
 threaded screw fastener.

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7. The threaded screw fastener as set forth in Claim 3,
wherein:

5 said head portion of said threaded screw fastener
further comprises a dome-shaped, circumferentially downwardly
sloped surface extending between, and interconnecting, said
substantially X-shaped recessed portion and said peripheral
portion of said substantially circular washer member.

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8. The threaded screw fastener as set forth in Claim 2,
wherein:

15 said head portion of said threaded screw fastener
comprises a substantially circular washer member integrally
formed upon said one end of said threaded shank portion and
comprising a peripheral edge portion;

20 said first hexagonally configured drive means com-
prises a plurality of facets radially set back from said pe-
ripheral edge portion of said substantially circular washer
member while corner regions defined between adjacent ones of
said plurality of facets are disposed at said peripheral edge
portion of said substantially circular washer member; and

25 said second Phillips head drive means comprises a
substantially X-shaped recessed portion defined within an
axially central region of said head portion of said threaded
screw fastener.

30 9. The threaded screw fastener as set forth in Claim 3,
wherein:

5 said head portion of said threaded screw fastener further comprises a dome-shaped, circumferentially downwardly sloped surface extending between, and interconnecting, said substantially X-shaped recessed portion and said peripheral portion of said substantially circular washer member.

10. The threaded screw fastener as set forth in Claim 1,
10 wherein:

15 said dual drive means integrally formed upon said head portion of said threaded screw fastener comprises first hexagonally configured drive means for engagement by correspondingly hexagonally configured rotary drive tool means, and second head drive means selected from the group comprising Phillips head drive means, Torx drive means, six-lobe drive means, internal hex drive means, and square drive means for engagement by correspondingly configured rotary drive tool means.

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11. A rotary drive tool for rotatably driving a threaded screw fastener into a substrate, comprising:

25 a socket member defined around a longitudinal axis; a concavely configured domed surface portion disposed internally within said socket member for accommodating a correspondingly convexly configured head portion of a threaded screw fastener; and
30 drive means defined within said socket member for engaging drive means defined upon the head portion of the

threaded screw fastener so as to rotatably drive the threaded screw fastener in order to install the threaded screw fastener into the substrate.

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12. The rotary drive tool as set forth in Claim 11, wherein said drive means comprises:

hexagonally configured structural means for engaging a correspondingly hexagonally configured drive means formed upon the head portion of the threaded screw fastener.

15 13. The rotary drive tool as set forth in Claim 11, wherein said drive means comprises:

Phillips head structural means for engaging a correspondingly Phillips head configured drive means formed upon the head portion of the threaded screw fastener.

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14. The rotary drive tool as set forth in Claim 11, wherein said drive means comprises:

25 drive means selected from the group comprising Phillips head drive means, Torx drive means, six-lobe drive means, internal hex drive means, and square drive means for engaging a correspondingly Phillips head drive means, Torx drive means, six-lobe drive means, internal hex drive means, and square drive means formed upon the head portion of the threaded screw fastener.

15. The rotary drive tool as set forth in Claim 11, wherein
said drive means comprises:

dual drive means integrally formed within said
socket member for permitting the threaded screw fastener to
5 be rotatably driven into a substrate by either one of said
dual drive means when either one of said dual drive means is
respectively engaged with a corresponding drive means inte-
grally formed upon the head portion of the threaded screw
fastener.

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16. The rotary tool as set forth in Claim 15, wherein:

said dual drive means integrally formed within said
15 socket member comprises first hexagonally configured drive
means for engaging a correspondingly hexagonally configured
drive means formed upon the head portion of the threaded
screw fastener, and second Phillips head drive means for en-
gaging a correspondingly Phillips head configured drive means
20 formed upon the head portion of the threaded screw fastener.

17. The rotary tool as set forth in Claim 16, wherein:

25 said hexagonally configured drive means comprises a
plurality of facets disposed upon an inner peripheral wall
portion of said socket member; and

30 said Phillips head drive means comprises a substan-
tially X-shaped projection disposed at an axially central
portion within said socket member.

18. The rotary tool as set forth in Claim 15, wherein:

 said dual drive means integrally formed within said socket member comprises first hexagonally configured drive means for engaging a correspondingly hexagonally configured drive means formed upon the head portion of the threaded screw fastener, and second drive means selected from the group comprising Phillips head drive means, Torx drive means, six-lobe drive means, internal hex drive means, and square drive means for engaging a correspondingly configured drive means formed upon the head portion of the threaded screw fastener.

15 19. In combination, a threaded screw fastener adapted to be rotatably driven into a substrate, and a rotary drive tool for rotatably driving said threaded screw fastener, comprising:

 a threaded screw fastener comprising a threaded shank portion defined around a longitudinal axis; a head portion formed upon one end of said threaded shank portion; and dual drive means integrally formed upon said head portion of said threaded screw fastener for permitting said threaded screw fastener to be rotatably driven into a substrate by a rotary drive tool when at least one of said dual drive means disposed upon said head portion of said threaded screw fastener is engaged by a rotary drive tool; and

 a rotary drive tool for rotatably driving said threaded screw fastener into a substrate; and

30 drive means defined upon said rotary drive tool for engaging at least one of said dual drive means defined upon

said head portion of said threaded screw fastener in order to rotatably drive said threaded screw fastener into the substrate,

 whereby said threaded screw fastener can be rotatably driven and installed within the substrate provided said drive means defined upon said rotary tool corresponds to at least one of said dual drive means defined upon said head portion of said threaded screw fastener.

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20. The combination as set forth in Claim 19, wherein:

 said rotary drive tool further comprises a socket member defined around a longitudinal axis; and

15 said drive means defined upon said rotary drive tool for engaging at least one of said dual drive means defined upon said head portion of said threaded screw fastener is disposed within said socket member.

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21. The combination as set forth in Claim 19, wherein:

 said dual drive means integrally formed upon said head portion of said threaded screw fastener comprises first 25 hexagonally configured drive means for engagement by correspondingly hexagonally configured rotary drive tool means, and second Phillips head drive means for engagement by correspondingly Phillips head configured rotary drive tool means; and

30 said drive means defined upon said rotary drive tool comprises at least one of hexagonally configured drive

means for engaging said hexagonally configured drive means formed upon said head portion of said threaded screw fastener, and Phillips head configured drive means for engaging said Phillips head configured drive means formed upon said 5 head portion of said threaded screw fastener.

22. The combination as set forth in Claim 21, wherein:

10 said dual drive means integrally formed upon said head portion of said threaded screw fastener comprises first hexagonally configured drive means for engagement by correspondingly hexagonally configured rotary drive tool means, and second Phillips head drive means for engagement by correspondingly Phillips head configured rotary drive tool 15 means; and

 said drive means defined upon said rotary drive tool comprises both hexagonally configured drive means for engaging said first hexagonally configured drive means formed 20 upon said head portion of said threaded screw fastener, and Phillips head configured drive means for engaging said second Phillips head configured drive means formed upon said head portion of said threaded screw fastener.

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23. The combination as set forth in Claim 17, wherein:

 said dual drive means integrally formed upon said head portion of said threaded screw fastener comprises first 30 hexagonally configured drive means for engagement by correspondingly hexagonally configured rotary drive tool means,

and second drive means selected from the group comprising Phillips head drive means, Torx drive means, six-lobe drive means, internal hex drive means, and square drive means for engagement by correspondingly configured rotary drive tool
5 means; and

10 said drive means defined upon said rotary drive tool comprises both hexagonally configured drive means for engaging said first hexagonally configured drive means formed upon said head portion of said threaded screw fastener, and second drive means, selected from the group comprising Phillips head drive means, Torx drive means, six-lobe drive means, internal hex drive means, and square drive means, for engaging a corresponding one of said second drive means formed upon said head portion of said threaded screw fastener.

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24. The combination as set forth in Claim 20, wherein:

20 said head portion of said threaded screw fastener has a convexly configured dome-shaped surface portion; and
25 said socket member has a concavely configured dome-shaped surface portion disposed internally within said socket member for accommodating said correspondingly convexly configured dome-shaped surface portion of said head portion of said threaded screw fastener.

25. A threaded screw fastener, adapted to be rotatably driven
30 into a substrate, comprising:

a shank portion defined around a longitudinal axis;

a head portion formed upon one end of said shank portion; and

a plurality of threads disposed upon said shank portion of said threaded screw fastener;

5 each one of said plurality of threads disposed upon said shank portion of said threaded screw fastener comprising a rearward flank portion and a forward flank portion;

10 wherein said forward flank portion of each one of said plurality of threads comprises first and second radially outer and radially inner flank surfaces, and wherein further, said second radially inner forward flank surface is disposed at a steeper angle with respect to said longitudinal axis of said shank portion than is said first radially outer forward flank surface such that less material is effectively present
15 upon said forward flank portion of each one of said plurality of threads within the vicinity of said longitudinal axis of said shank portion such that installation torque of said threaded screw fastener, when installed within the substrate, is substantially reduced.

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26. The threaded screw fastener as set forth in Claim 25, wherein:

25 said rearward flank portion of each one of said plurality of threads is disposed substantially perpendicular to said longitudinal axis of said shank portion such that pull-out resistance of said threaded screw fastener, after being installed within the substrate, is substantially increased.
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27. The threaded screw fastener as set forth in Claim 26,
wherein:

5 said rearward flank portion of each one of said
plurality of threads comprises first and second radially out-
er and radially inner flank surfaces, and wherein further,
said second radially inner rearward flank surface is disposed
at a steeper angle with respect to said longitudinal axis of
said shank portion than is said first radially outer rearward
flank surface such that pull-out resistance of said threaded
10 screw fastener, when installed within the substrate, is sub-
stantially increased.

15 28. The threaded screw fastener as set forth in Claim 27,
wherein:

 said first radially outer forward flank surface is
disposed at an angular orientation which is within the range
of 0-40° with respect to a radius of said shank portion;

20 said second radially inner forward flank surface is
disposed at an angular orientation which is within the range
of 0-35° with respect to said radius of said shank portion;

 said first radially outer rearward flank surface is
disposed at an angular orientation which is within the range of
25 0-7° with respect to said radius of said shank portion; and

 said second radially outer rearward flank surface
is disposed at an angular orientation which is within the
range of 0-7° with respect to said first radially outer rear-
ward flank surface.

29. A threaded screw fastener, adapted to be rotatably driven into a substrate, comprising:

 a shank portion defined around a longitudinal axis;

 a head portion formed upon one end of said shank

5 portion; and

 a plurality of threads disposed upon said shank portion of said threaded screw fastener;

 each one of said plurality of threads disposed upon said shank portion of said threaded screw fastener comprising 10 a rearward flank portion and a forward flank portion;

 said rearward flank portion of each one of said plurality of threads is disposed substantially perpendicular to said longitudinal axis of said shank portion such that pull-out resistance of said threaded screw fastener, after 15 being installed within the substrate, is substantially increased.

20 30. The threaded screw fastener as set forth in Claim 29, wherein:

 wherein said rearward flank portion of each one of said plurality of threads comprises first and second radially outer and radially inner flank surfaces, and wherein further, 25 said second radially inner rearward flank surface is disposed at a steeper angle with respect to said longitudinal axis of said shank portion than is said first radially outer rearward flank surface such that pull-out resistance of said threaded screw fastener, when installed within the substrate, is sub- 30 stantially increased.

31. The threaded screw fastener as set forth in Claim 30,
wherein:

5 said first radially outer rearward flank surface is
disposed at an angular orientation which is with the range of
0-7° with respect to said radius of said shank portion; and
 said second radially outer rearward flank surface
is disposed at an angular orientation which is within the
range of 0-7° with respect to said first radially outer rear-
ward flank surface.

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